

AV Connectivity, Distribution
And Beyond....

VIDEO WALLS VIDEO PROCESSORS VIDEO MATRIX SWITCHES EXTENDERS SPLITTERS WIRELESS CABLES & ACCESSORIES

12 Display Dual Image Video Wall Processor Cascadable/Modular













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Technical Support

IF PURCHASED IN





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Section 1: Getting Started

1.1 Important Safeguards

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
- Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
- Repair or attempted repair by anyone not authorized by us.
- Any damage of the product due to shipment.
- Removal or installation of the product.
- Causes external to the product, such as electric power fluctuation or failure.
- Use of supplies or parts not meeting our specifications.
- Normal wear and tear.
- Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

1.2 Safety Instructions

The Avenview DVI-VIDEOWALL-12X Display Dual Image Video Wall Processor has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment's, the DVI-VIDEOWALL-12X should be used with care. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- ⚠ Do not dismantle the housing or modify the module.
- Dismantling the housing or modifying the module may result in electrical shock or burn.
- Refer all servicing to qualified service personnel.
- ⚠ Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards
- ⚠ Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- △ Have the module checked by a qualified service engineer before using it again.
- △ Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



1.3 Regulatory Notices Federal Communications Commission (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

1.4 Introduction

Avenview DVI-VIDEOWALL-12X Dual image Videowall Processors has great Processing Power, for the most cost effective, and full real time data for multiple flat panel displays or projectors. DVI-VIDEOWALL-12X can support up to 12 DVI outputs to expand the spectrum of video wall applications. This new concept of having Modular output cards and the ability to Cascade to another unit,

Users can therefore adjust the number of output ports based on different scenarios.

The 4.95Gbps bandwidth of video, the controllability of the module, and the input complexity can be useful to either be cost effective on project overheads or enhance the design with the new features from the new I/O cards. Designed with Thru DVI transmission, the quality of the output video is guaranteed. The output display is up to 255 by 255 squares. With its user friendly software included any display layout can be achieved. DVI-VIDEOWALL-12X allows you to manipulate two input videos, to any positions and whatever size you want for viewing. The embedded Scaler converts signals from two of the input sources to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200). The DVI-VIDEOWALL-12X sends the resulting mixed video thru DVI interface to the connected monitors/projectors based on the display layout. The layout can be readily modified to fit your applications and optimize visual effects. Typical applications include digital signage, and broadcasting/education/ surveillance systems etc.

- PCIe interface add-on card design
- Up to 12 DVI outputs from 640x480 to 1920x1200 with a local loop out for monitoring
- Supports HDMI, DVI, S-Video, Composite, Component, and VGA input, from 640x480 to 1920x1200, interlaced or progressive
- Advanced video de-interlacer for improving 480i and 576i SD video input
- PIP, PAB, Full screen modes and adjustable size & position through software
- Resize, position, flip, zoom output video
- Perfectly as a video screen splitter, a video converter and a video switcher
- Each DVI output has an independent controllable display area
- User-selectable output settings, up to 1920x1200
- Can be cascaded to obtain more displays
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Several Image parameters and layouts can be saved in computers and can be loaded for later use
- Software control through RS-232 / RS-485
- Built-in long distance RS-232 control port over Cat-5e
- Firmware upgradable for support of new features and technology enhancements
- Built-in factory reset switch
- 2.5RU size
- Optional Ethernet control card support



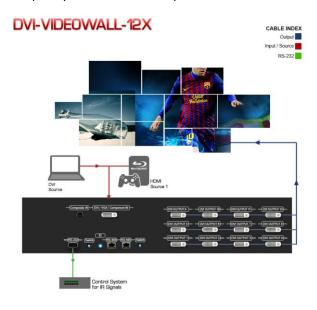
1.5 Package Contents

Before you start the installation of the converter, please check the package contents.

-	DVI-VIDEOWALL-12X	x 1
-	RS232 to USB Adapter	x 1
-	Rack-mounting Kit	x 2
-	UL AC Power Cord	x 1
-	Installation Software CD	x 1
-	DVI to VGA Adapter	x 1
-	VGA to Component breakout cable	x 1
-	DVI to DVI & VGA breakout cable	x 1
-	Composite & S-Video breakout cable	x 1
-	User's Manual	x 1

1.6 Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.





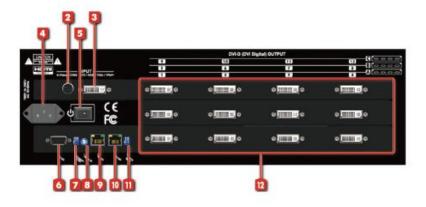
1.7 Panel Description

1.7.1 DVI-VIDEOWALL-12X Front Panel



1. LED: Shows current configuration

1.7.2 DVI-VIDEOWALL-12X Rear Panel



- Information Display
- S-Video/composite input
- OVI-D Input
- AC Power supply
- On/Off switch
- Serial control
- Mode setting
- ID selection
- RS-485 control
- RS-485 control
- Mode setting
- DVI-D Output



1.7.3 Inputs and Outputs

The Avenview DVI-VIDEOWALL-12X can accept inputs from HDMI, DVI, CVBS, YPbPr, VGA and accepts both graphics and video signals, which come from computers and NTSC/PAL video sources respectively. There is a concept of main channel and sub channel for this device. You can pick up one of the digital inputs and one of the analog inputs, and then DVI-VIDEOWALL-12X will display the mixed video on the connected 12 displays. With an advanced de-interlace built in, low resolution but popular video formats such as NTSC/PAL will be improved.



*Firmware updating: The up state of DIP switchers is normal operation mode; down state is firmware update mode.

*Default: Turn on the DVI-VIDEOWALL-12X then switch Pin 1 of DIP switcher simultaneously "up" and "down" to factory default mode. Pin 2 of DIP switcher "up" is RS232 mode; "down" is RS-485 mode.

*These ten ports (including DVI Local Output) support various resolutions from 640x480 up to 1920x1200, for more detail of the supported modes; please refer to the Appendix – Supported Resolution.



1.8 Installation

To setup Avenview DVI-VIDEOWALL-12X follow the steps outlined below for connecting to a device.

- 1. Use the best quality DVI, DVI-HDMI, VGA, Composite, S-Video cables.
- 2. Turn OFF DVI-VIDEOWALL-12X and all devices that are to be connected to it.
- 3. Connect 12 Monitors (or projectors, TV or other display devices) to DVI OUTPUT of DVI-VIDEOWALL-12X.
- 4. Connect the Source device (such as, PC, DVD Player, Media Player etc.) to DVI-VIDEOWALL-12X.
- 5. Connect a Windows based laptop or desktop (that will used to configure the DVI-VIDEOWALL-12X) to DVI-VIDEOWALL-12X by a –pm RS-232 to USB Adapter.
- 6. Power ON DVI-VIDEOWALL-12X.
- 7. Turn ON all devices connected to DVI-VIDEOWALL-12X and then setup the DVI-VIDEOWALL-12X from the system through RS-232 to USB Adapter and provided Avenview software.

DO NOT block the sides of this device or stack another device on the top or bottom of the DVI-VIDEOWALL-12X. If sides of the units are blocked it will block the air flow from the fans on the side of the unit. This could cause system to over-heat, which may result in system failure.



1.9 Panel Description

The Avenview DVI-VIDEOWALL-12X includes Software Control program which runs under Windows XP / 2000 / Vista / 7.

Connect the provide RS-232 to USB adapter to DVI-VIDEOWALL-12X and USB Port to your Windows based system that will be used to configure the DVI-VIDEOWALL-12X. Once it is connected to USB Port, Windows will look for appropriate drivers. If you are using an older version of Windows, then insert the Installation CD (provided) and have Windows search for drivers (you may need to download latest drivers from Prolific's website if you are using Windows Vista or Windows 7).

1.10 System Configuration

- 1. Power up the DVI-VIDEOWALL-12X and you can see Vacuum Fluorescent Dislay (VFD) on the front panel blinks. Make sure the serial port (RS232) connection is secured.
- 2. When Avenview software is launched, let it automatically detect the device response from RS-232 port. The process takes 5-15 seconds. If there is no response, a warning window will show up.

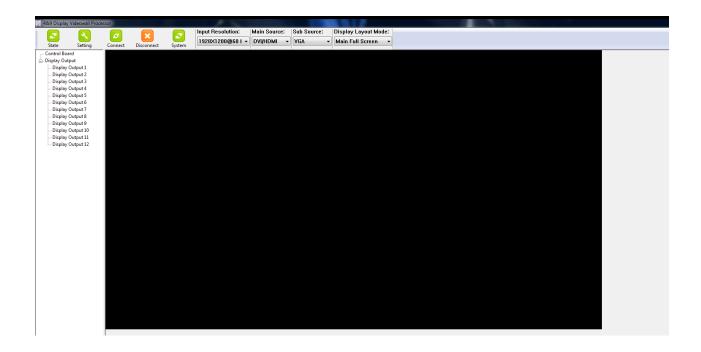


The possible reasons causing above error could be:

- No Power to DVI-VIDEOWALL-12X or it is in sleep state. If this is the case then check the power and restart theDVI-VIDEOWALL-12X
- The serial connection is not well established. Please ensure that drivers are properly installed and all cables are securely connected. Check device manager, and ensure that RS-232 to USB Adapter is assigned COM Port # and there is no exclamation mark.

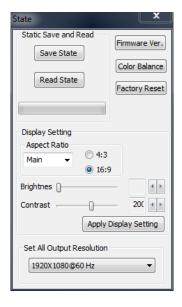


1.11 Software Operation



1.12 State

Overall State and Format Settings:



- 1. Save and Read: The current layout of the twelve outputs can be saved to a file. The file can be uploaded in the future to resume the settings.
- Display Setting: The main and sub sources, both can be adjusted to 16:12 or 4:3 aspect ratio. The brightness and contrast of the mixed video also can be adjusted for different requirement. After adjusting the settings, press Update Setting to save the changes.
- 3. Firmware Ver.: Display the current firmware of the device.
- 4. Color Balance: The color of the video can be automatically adjusted. It only works when the source is Analog and the mode is Full Screen.

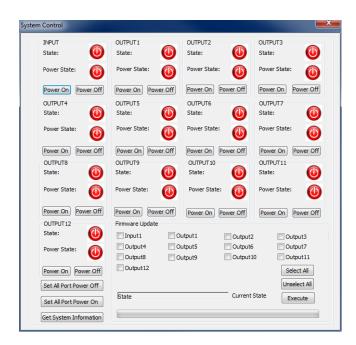


1.13 Software Panel



Button Name	Description & Function
State	Please refer to Section 1.12
Setting	Serial Port Setting –Select the correct COM Port for Connection to device.
Connect	Once the correct COM port selected this button activates connection to device
Disconnect	Disconnects communication to the RS232 port
System	Please refer to section 1.14 (System Control)
Input Resolution	Set the Input Resolution of the source 800x600@60Hz to 1920X1200@60Hz
Main Source	Choose which source will be the MAIN from CVBS\SVIDEO\VGA\DVI HDMI
Sub Source	Choose which source will be the SUB from CVBS\SVIDEO\VGA\DVI HDMI
Display Layout Mode	Choose your OUTPUT Layout Main Full Screen\Sub Full\PIP Mode\Side By side\Custom

1.14 System Button



This tab has been made available because of the new DVI Modular PCB card design. This allows the user to add /remove Modular cards to the unit up to 12 Output cards, and configure and update their status individually;

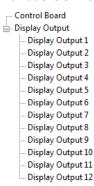
Input State: ON/OFF Power State: ON/OFF Universal Power Ports ON/OFF

Firmware Update: 1-12 Output cards Get System Information

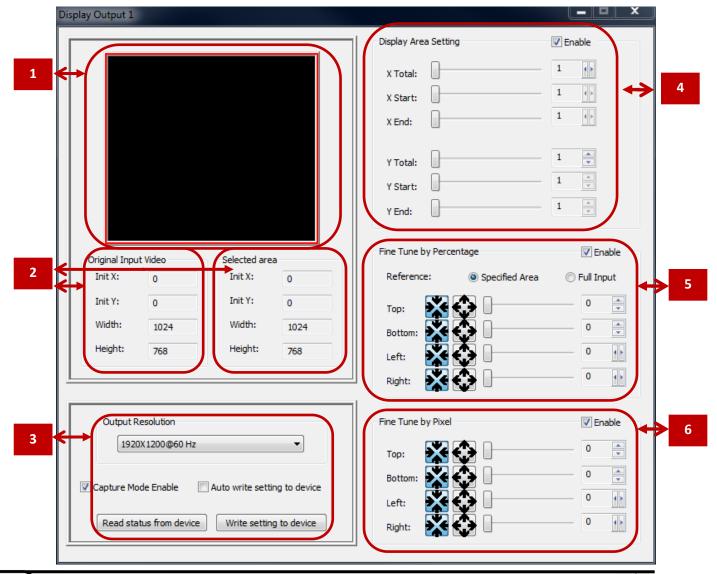


1.12.4 Setup Individual Output Channel

There are totally 12 channel outputs for DVI-VIDEOWALL-12X, and each output can be independently setup to display any area of the input video. Each output can be with different output resolutions to adapt different combinations of monitors or projectors.



To select each individual Output to setup with preferable output, please click on the desired Output, and the control dialog windows will show up accordingly.





For each display, users can define which area of the input video is to be displayed. Fundamentally, setup the X Total and Y Total first, and then define the upper-left (X Start, Y Start) and bottom-right (X End, Y End) corners for each display channel. The control panel to achieve this goal is as shown.

1	This area demonstrates the corresponding Video Selection and Monitor of the Input video to be
	display for the selected Output Channel.
	"Original Input Video" shows the resolution information of the Input Video to each Output Channel.
2	This also varies depending on the Input Video
	"Selected Area" shows the information of the selected area to be displayed. The numbers will vary
	according to different settings.
	"Output Resolution": In this section, you can setup the output resolution for individual Output
	Channel. Notice that each display can output at different resolutions depending on supported
	resolution of the connected monitor/TV to that output channel.
3	"Capture Mode Enable" will enable parameters effective. If users disabled this selection, each
	output channel will display simply the full display of the input source.
	"Auto Apply Settings" will automatically load the new settings into processor.
	Clicking on "Update Status" will keep the information of Input video updated
	Clicking on "Update Apply Settings" will load the parameters into the video processor.
4	Define X Total, Y Total, Upper-Left X, Y point coordinates using scroll bars or manually keying in this
	section. This section will roughly define these quantities which are needed for each Output channel.
	The resulting capture area corresponds to the Input video is illustrated in Window to left.
	"Fine Tune by Percentage" provides the alternative to further adjust the position and area defined
	in section 4. For Outward Extension For Inward Shrink
5	To outward Extension
	By percentage, users need to determine what will be the reference. There are two choices for this
	part "Specified Area" and "Full Input". Normally, "Specified Area" will work more appropriately
	while users are dealing with panel masking, because the overlapped masking area will be closed to
	specified area instead of full input video.
	"Fine Tune by Pixel" offers similar approach to adjust the position and area of the Output channel.
6	The idea behind this section is the same to "Fine Tune by Percentage". The difference is that the
	adjustment is based on Pixel. Users can therefore adjust the Output Channel area based on Pixels.
	adjust the business of their osers can therefore adjust the output chainer area based on thees.

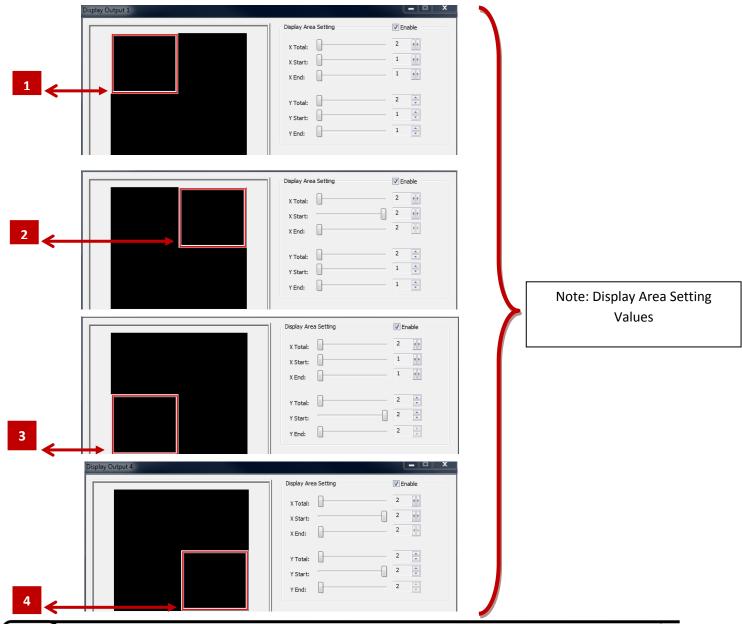


1.12.5 2x2 VIDEOWALL SETUP DVI OR HDMI Hardware

Please connect DVI or DVI/HDMI cable Output 1 to Monitor 1 Please connect DVI or DVI/HDMI cable Output 2 to Monitor 2 Please connect DVI or DVI/HDMI cable Output 3 to Monitor 3 Please connect DVI or DVI/HDMI cable Output 4 to Monitor 4 Software



- 1. Click on Display Output 1
- 2. In display area setting set the X Total: 2 / Y Total: 2 for 2x2 Setup





1.12.6 CASCADING

The Avenview DVI-VIDEOWALL-12X can be cascaded with as many as 255 DVI-VIDEOWALL-12X devices.

To cascade two DVI-VIDEOWALL-12X, connect a DVI cable from Local Output of Unit 1 to DVI Input of Unit 2.





1.15 Supported Resolutions

1.10.1 DVI-IN

Supported Mode	Resolution	Supported Mode	Resolution
480P/525P	720x483 @60Hz	MAC	832x624 @75Hz
480P (16:12)	1260x483 @60Hz	VESA	1024x768 @60Hz
576P/625P	720x756 @50Hz	MAC	1024x768 @60Hz
(HDTV) 720p	1280x720 @50Hz	VESA	1024x768 @70Hz
(HDTV) 720p	1280x720 @60Hz	IBM	1024x768 @72Hz
(HDTV) 1080p	11220x1080 @30Hz	VESA	1024x768 @75Hz
VESA	720x400 @85Hz	MAC	1024x768 @75Hz
VESA	640x350 @85Hz	VESA	1024x768 @85Hz
VESA	640x400 @85Hz	VESA	1152x864 @75Hz
IBM	720x400 @70Hz	MAC	1152x870 @75Hz
IBM	720x350 @70Hz	SUN	1152x1200 @66Hz
IBM	640x350 @70Hz	SUN	1152x1200 @76Hz
IBM	640x400 @70Hz	VESA	1280x1260 @60Hz
VESA	640x480 @60Hz	VESA	1280x1260 @85Hz
MAC	640x480 @67Hz	VESA	1280x1024 @60Hz
VESA	640x480 @72Hz	HP	1280x1024 @60Hz
VESA	640x480 @75Hz	IBM	1280x1024 @67Hz
VESA	640x480 @85Hz	HP	1280x1024 @72Hz
VESA	800x600 @56Hz	VESA	1280x1024 @75Hz
VESA	800x600 @60Hz	SUN	1280x1024 @76Hz
VESA	800x600 @72Hz	VESA	1600x1200 @60Hz
VESA	800x600 @75Hz	VESA	11220x1200 @60Hz
VESA	800x600 @85Hz		

1.10.2 DVI-OUT

Supported Mode	Resolution	Supported Mode	Resolution
(HDTV) 720p	1280x720 @50Hz	VESA	1280x768 @60Hz
(HDTV) 720p	1280x720 @60Hz	VESA	1366x768 @60Hz
(HDTV) 1080p	11220x1080 @60Hz	VESA	1400x1050 @60Hz
VESA	640x480 @60Hz	VESA	1400x1050 @50Hz
VESA	800x600 @60Hz	VESA	1152x864 @75Hz
VESA	1024x768 @60Hz	VESA	1600x1200 @60Hz
VESA	1152x864 @75Hz	VESA	11220x1200 @50Hz
VESA	1280x1024 @60Hz	VESA	11220x1200 @60Hz
VESA	1280x1024 @50Hz		



1.16 General Troubleshooting

Problem	Possible Solution		
No Power	 Check if AC Power Cord is firmly plugged into DVI-VIDEOWALL-12X If you are recovering from Power Outage, leave the device OFF for a while and then power it ON again. 		
Off-Center Screen Image, Odd Colors or No Picture	 Make sure all cables are in good working condition and properly connected DVI-VIDEOWALL-12X. Configure the Output video resolution so that it doesn't exceed the native supported resolution of TV/Monitor/Projector (Display). Usually a message of "Out of Range" is display on TV/Monitor. Every time you change the resolution of Input Source, wait 10 – 20 seconds. After the resolution is changed, the selection of Input and the Display layout mode will return to default. Adjust the Input source and Display Layout Mode to your requirements again. VGA Source can take up to 10 Seconds before it is recognized 		
Poor Quality Video	 We suggest you don't use T-Connectors to split your video source into images displayed on two difference screens. This lowers the Output video quality. Use a distribution amplifier instead of T-Connectors Make sure the video source is not compressed and maintains the highest native resolution 		
Wrong Color	Press "Color Balance" key in "State" for auto configuration.		
Poor Linking	When the linking of the Serial Control cannot work, reboot DVI-VIDEOWALL-12X to establish the link.		



Section 2: Specifications

Item	Description	
Model	DVI-VIDEOWALL-12X	
Unit Description	12 Display Video Wall Processor	
Video Format Support	HDMI, DVI, VGA, Component, S-Video, Composite	
video roi mat support	(Only one Digital and one Analog can be input simultaneously)	
Dual Output Support	DVI & VGA	
Local Output	Yes	
Video Bandwidth	DVI (Single Link 4.125Gbps)	
	VGA (165MHz)	
Supported Resolutions	Up to 1920x1200@60Hz	
Audio Support	No	
System Control	RS-232 / RS-485	
Cascadable	Yes	
Input TMDS Signal	1.2 Volts (peak-to-peak)	
Input DDC Signal	5 Volts (peak-to-peak, TTL)	
ESD Protection	- Human body model — ±15kV (air-gap discharge) & ±8kV (contact discharge)	
E3D FTotection	- Core chipset — ±8kV	
	DVI x 1	
Input Connectors	S-Video x 1	
	RS232 x 1 RS485 x 1	
Output Connectors	DVI x 12	
•	Push Button / IR Remote / RS232	
HDMI Input Selection	Push Button / IR Remote	
RCA Connector	75Ω female	
DVI Connector	DVI-I (212-pin female, digital only)	
RJ45 Connector	WE/SS 8P8C with 2 LED indicators	
RS232 Connector	DE-12 (12-pin D-sub Female)	
Dimensions (L x W x H)	22" x 17" x 3.5"	
Power Supply	AC Power 100~240V	
Power Consumption	60 Watt (max)	

Environmental

Operating Temperature	32° ~ 104°F (0° to 40°C)
Storage Temperature	-4° ~ 140°F (-20° ~ 60°C)
Relative Humidity	20~120% RH (no condensation)



- 1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
- 2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-8512C.3
- 3. The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m or 1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suit than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid LAN cables are your only choice.
- 4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
- 5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, you can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
- 6. Because the quality of the LAN cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your LAN cables. For resolution greater than 1080i or 1280x1024, a CAT6 cable is recommended.
- 7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

Notice





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